

Notice of Allowability

Application No.

09/761,489

Examiner

Nguyen T Ha

Applicant(s)

ABDUL-RIDHA ET AL.

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/24/2004.
2. ☒ The allowed claim(s) is/are 7-11 and 21-47.
3. ☒ The drawings filed on 05 March 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

1. The request filed on 8/24/2004 for a Request for Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 09/761,489 is acceptable and a RCE has been established. An action on the RCE follows.

Allowable Subject Matter

2. Claims 7-11 and 21-47 are allowed.

The following is an examiner's statement of reasons for allowance:

With respect to claims 7-11, the prior art alone or in combination does not teach the limitation of a structure comprising a first and second layer of metallic tantalum nitride, the first layer of metallic tantalum nitride being situated between a dielectric comprising ceramic tantalum nitride and a first capacitor electrode and the second layer of metallic tantalum nitride being situated between the dielectric comprising ceramic tantalum nitride and the second capacitor electrode.

With respect to claims 21-33, the prior art alone or in combination does not teach the limitations of the structure capacitor comprising a first barrier layer over the bottom copper interconnect metal segment, a copper seed layer over the first barrier layer, a dielectric comprising tantalum nitride over copper seed layer, and a second barrier layer over the dielectric.

With respect to claims 34-47, the prior art alone or in combination does not teach the limitation of the capacitor comprising a first barrier layer over the bottom interconnect metal segment, a seed layer over the first barrier layer, a dielectric over the seed layer, a second barrier layer over the dielectric and a second capacitor electrode

Art Unit: 2831

comprising a top interconnect metal segment, wherein the bottom interconnect metal segment, the first barrier layer, the seed layer, the dielectric, the second layer and the top interconnect metal segment are fabricated in a single tool.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T Ha whose telephone number is 571-272-1974. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 2831

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nguyen T. Ha
September 20, 2004

 9/23/04
DEAN A. REICHARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800